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B²
5. (Twice Amended) A recombinant expression system comprising a nucleic acid sequence that includes an open reading frame, operably linked to a control sequence compatible with a desired host, wherein said nucleic acid sequence is selected from the group consisting of [(i)] polynucleotides having [50%] at least 95% identity to SEQUENCE ID NOS. 1-20 [1-8, 10-12, 15-20 and (ii)] polynucleotides having 70% identity to SEQUENCE ID NOS. 9, 13 and 14] or complements thereof.

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11. (Twice Amended) A cell transfected with a nucleic acid sequence encoding at least one epitope, wherein said nucleic acid sequence is selected from the group consisting of SEQUENCE ID NOS 1-20, [and fragments] or complements thereof.

B⁴
15. (Twice Amended) A composition of matter comprising a polynucleotide, wherein said polynucleotide is selected from the group consisting of [(i)] polynucleotides having [50%] at least 95% identity to SEQUENCE ID NOS. 1-20 [1-8, 10-12, 15-20 and (ii)] polynucleotides having 70% identity to SEQUENCE ID NOS. 9, 13 and 14] or complements thereof.

B⁵
17. (Twice Amended) An isolated polynucleotide [gene, or a fragment thereof,] which codes for a protein comprising an amino acid sequence that has at least [60%] 95% identity with SEQUENCE ID NO 41.

18. (Amended) [A gene or fragment thereof,] which codes for a [CS194] protein comprising an amino acid sequence that has at least [60%] 95% identity with SEQUENCE ID NO. 20.

REMARKS

Claims 1-6, 11, 15, 17, and 18 are rejected under 35 U.S.C. §101 because the claimed invention is not supported by either an asserted utility or a well established utility. The Examiner states that although the specification discloses that the polynucleotides of the instant invention are partially homologous to a polynucleotide encoding a bovine chloride protein, it is not clear how this marker would be useful to diagnose cancer of the GI tract.

Application will clarify. CS 194 as stated above, is a well-known chloride channel. Guanylyl cyclase C (GCC) is a colon specific gene that regulates chloride channels in colon cells. The present inventors have identified two novel chloride channels that are specific to the colon and regulated by GCC or a GCC homologue. The utility of GCC and its role as a diagnostic for colon cancer is clear from the literature (see